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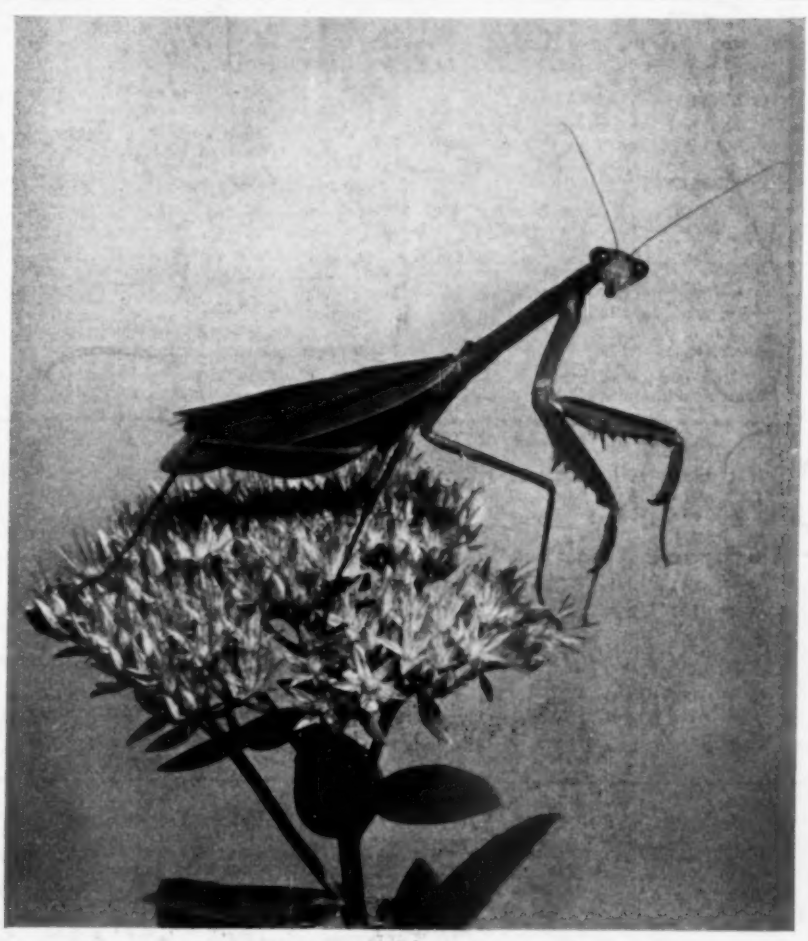
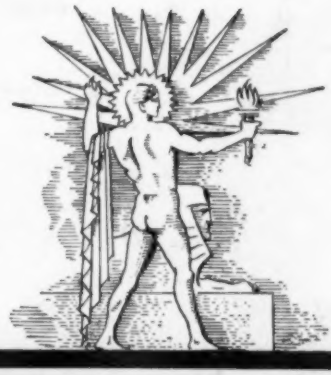
SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE •





August 30, 1941

Autumnal Spectre

See Page 137

A SCIENCE SERVICE PUBLICATION

Do You Know?

Russia gets 80% of its *oil* from the Caucasus region.

There are historic records of Norwegian *whaling* as early as 417 A.D.

Applying knowledge of vitamins and balanced *diets* to animal rations is credited with prolonging many animal lives in zoos.

Iceland's many *waterfalls* would provide 2,500,000 horsepower, according to estimate, but this water power is practically unharnessed.

A new apartment building in Washington will have *ultraviolet* conditioned air, as a device to prevent air-borne infections from spreading.

Plastics that Brazil has started to produce from *coffee* can be made without use of foreign materials—which might prove bottlenecks just now.

Safety helmets of plastic, pronounced sturdy enough for mining and construction jobs, can be made from heavy cotton treated with a soybean material.

The Pacific Ocean has the greatest known *depths*, the greatest being 35,400 feet, whereas deepest Antarctic waters yet sounded are no more than 14,274 feet.

One South American *fish* can climb vertical stone walls in a stream bed, aided by a modified sucker-like mouth and an apparatus formed by the lower surfaces of its pelvic fins.

Most birds will not eat hairy *caterpillars*, says a zoologist.

Fresh peas lose about one-third of their *vitamin C* when kept at room temperature for three days.

The first *air-mail* letter, sent to Benjamin Franklin when he was living in France in 1785, was carried in a balloon across the English Channel.

No *rubber* substitute as cheap as rubber has yet been evolved.

British efforts to salvage *wastepaper* are said to have saved Britain 60 shiploads of paper.

At weaning time, a *Navajo lamb* already shows the kind of fleece it will have when grown, whether coarser or finer.

QUESTIONS DISCUSSED IN THIS ISSUE

Most articles which appear in SCIENCE NEWS LETTER *are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.*

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What part of the country is suffering from sleeping sickness? p. 132.

SCIENCE NEWS LETTER

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PUBLIC HEALTH

California Case of Plague Second Boy To Die There

Summer's Deaths Called Examples of What Happens When Rodents Are Allowed To Live Near Human Homes

A CASE of plague in a human victim has been reported by California health authorities to the U. S. Public Health Service.

This report follows closely on a warning issued by the American Medical Association that war conditions might cause a frightful epidemic of plague to sweep the United States (*See SNL,* Aug. 9)

Plague is prevalent on the Pacific Coast in fleas, rats, ground squirrels and marmots.

Recently it was reported spread to North Dakota in the fleas that infest squirrels there.

Although the little boy who died in Siskiyou County, California, of the dread disease plague is the second case that has occurred in that state this summer, there is no need for undue fear of a major epidemic in the opinion of Dr. Karl F. Meyer, director of the Hooper Foundation of the University of California, who has made a special study of this disease.

These two cases are the first since 1938 in California, Dr. Meyer said in response to an inquiry from Science Service. One case occurred last year in Idaho.

These accidental infections, he said, were examples of what may happen when, in an endemic plague area, rodents are permitted to live and nest near homes.

"The environmental factors so conducive to plague in the Middle Ages—the British manor—were reproduced on the ranch where the first case occurred," he said.

Suppressive measures against rodents, which carry the disease, are being taken, he said, but will have to be maintained for years to come. It will be difficult, he predicted, to educate everybody to beware of fostering squirrels, chipmunks and other wild rodents as pets in a region where plague is raging among such animals.

Both plague cases in California this summer took the lives of boys.

"The first case occurred in June on a ranch about five miles outside Yreka," Dr. Meyer said in answer to Science Service's inquiry.

"I made the diagnosis on the specimens which were sent to me. The patient died on the tenth day of his illness before the nature of the disease was actually recognized. It is strange that again a human case served as an indicator for the existence of rural plague in a county which was considered free from the disease.

"The infection of the boy was probably due to a flea bite contracted in the barn of the ranch. Personal investigation disclosed an open wooden grain bin and horse feeding troughs readily accessible to all kinds of rodents. The ground of the hallway between the bin and the stalls was teeming with fleas. An epizootic (epidemic among animals) disease was active on the ranch killing squirrels and rabbits, and thus it is apparent that infected rodents were attracted to the human habitations by the feed storage.

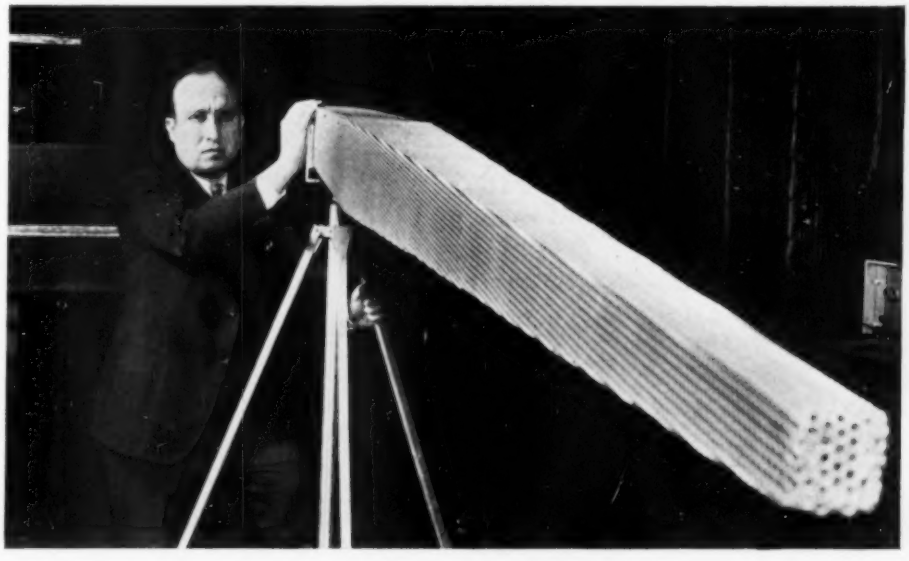
"Subsequent survey studies conducted by the California State Department of Public Health yielded infected fleas from squirrels and marmots shot on the ranch and in the vicinity. For the first time in the history of plague in California, a Douglas squirrel (Citellus beecheyi Douglasii) with the lesions of bubonic plague was found. Likewise two squirrels with tularemia were encountered in the same area. Thus plague and tularemia were responsible for the rodent deaths.

"The second case was seen by the writer on August 10. A five-year-old boy had died after an illness of three days. Shortly before death the swelling in the right groin was suspected as a plague bubo, and the attending physician proved the diagnosis by microscopic examination of the juice extracted from the gland. This case occurred about 40 miles south from the first case, at Mt. Shasta City.

"The family lives in an outlying newly opened tract of the town where chipmunks, squirrels, etc., were constantly attracted by garbage thrown in the back yard or rabbit hutches furnished readily accessible food to a variety of rodents.

"Dead squirrels were found a few hundred yards from the cottage. This case illustrates the risk for man to contract plague when he lives under primitive conditions with little concern relative to environmental sanitation. In an endemic plague area, rodents carrying infected fleas are thus brought close to man.

"Just as in South Africa, the Kraal



FOR SOUND PERSPECTIVE

This long-shot microphone designed in RCA Laboratories is 10 feet long and sensitive and directional. It can be used "out front" in a position similar to that which would be occupied by an audience to bring realism to radio, the movies and television.

rather than the outside veld is the important source of infection. So is the ranch house or the cottage of a recreational area the place where plague may be contracted, when man permits rodents to inhabit the premises.

"It will be the duty of the public health agency to make the people conscious of these facts, and to provide for the means to keep the rodent population away from the home and the community."

Science News Letter, August 30, 1941

MEDICINE

Boy, Tall as Grown Man, Saved From Giantism

A BOY who was becoming a giant (5 feet 8½ inches at 11 years) has been saved from that unhappy fate by treatment with a male sex hormone, Dr. F. P. Currier, Dr. C. H. Frantz and Dr. Ray Vander Meer of Grand Rapids, Mich., report. (*Journal, American Medical Association,* Aug. 16).

The patient was "born tall"; he was a half-inch over two feet in length at birth. By the time he was two, he stood 3 feet 2 inches in height. He had to be treated several times for troubles arising from his too-rapid growth, which appeared to be due to over-activity of one part of the pituitary gland, whose secretion promotes growth.

Finally, when giantism was an apparent danger, he was placed on the hormone treatment. Researches with laboratory animals, as well as clinical experience, indicate that the sex glands secrete a substance that operates against the growth-promoting hormone of the pituitary.

The patient, after two years of periodic injections with the sex hormone known as testosterone propionate, had his growth definitely checked. He will be an unusually tall man in any case; at 13, his height is 6 feet 1¼ inches. But there is reason to hope he will not be that unhappiest of humans, a giant.

Science News Letter, August 30, 1941

Germany is reported to be conscripting for military service all *dogs* more than 20 inches tall.

A colorless component of ragweed pollen, believed to be one of the major causes of *hay fever,* has been isolated for the first time by Harold A. Abramson and D. H. Moore of the Columbia University School of Medicine and H. H. Gettner of Mount Sinai Hospital, New York City.

PUBLIC HEALTH

Sleeping Sickness Gaining Rapidly In North Dakota

340 New Cases Reported Within a Single Week; Infantile Paralysis Cases Also Climbing

THE SLEEPING SICKNESS (encephalitis) outbreak is gaining ground rapidly in North Dakota and Minnesota, according to reports received by the U. S. Public Health Service.

In North Dakota, new cases reported for the week ending Aug. 16 had mounted to 340 as compared with 178 the previous week.

Another potential danger in this state is seen by health officials in an outbreak of sylvatic plague found in fleas from ground squirrels. This disease has been known to spread to human victims.

Minnesota, doubly troubled with both sleeping sickness and infantile paralysis, reported 121 cases of sleeping sickness as against 65 the previous week, and an increase from 12 to 14 cases of infantile paralysis.

In neighboring Manitoba, across the Canadian border from North Dakota and Minnesota, 22 sleeping sickness cases have been reported as occurring recently. This region had previously reported an outbreak of infantile paralysis. Health officials in Washington feel that there may be some significance in the doubling up of infantile paralysis and sleeping sickness there and in Minnesota. The two diseases are similar in some ways; both affect the nervous system. It is possible it may be discovered that both can be acquired from the same or related sources.

In South Dakota the number of sleeping sickness cases went down from 61 to 44.

Reports from various parts of the nation of infantile paralysis cases show the same rate of increase for the week ending Aug. 16 as during the previous week. Although the percentage increase remained the same, the actual number was larger, however. The jump was from 422 for the week ending Aug. 9 to 549 in the week ending Aug. 16, exclusive of West Virginia which had not yet reported. Figures for the week of Aug. 2 were 326. This means an increase of 127 cases for the week ending Aug. 16 compared with an increase of 96 cases for the week before—just about 30% in both periods.

The largest number of cases are still concentrated in the south Atlantic and east south central states where Alabama reported 82, Tennessee 37, Kentucky 15, Georgia 69, North Carolina 16, South Carolina 11, Maryland 16 and the District of Columbia 8. Increases were not very large there, however.

Most significant increases were in New England where the number jumped from 7 to 22, in New York with an increase from 30 to 49, Pennsylvania from 17 to 45, Ohio from 27 to 37, Illinois from 8 to 18, Michigan from 10 to 16, and Wisconsin from 1 to 5. Iowa reported five cases and Missouri four. Neither of these two states had cases in the previous week.

Science News Letter, August 30, 1941

GENERAL SCIENCE

Science in a Democracy Must Be Distributed

SCIENCE in a democracy must become the property of the people, lest both science and democracy be lost. This, in effect, is a warning contained in *The Road of a Naturalist,* a new book by the well-known naturalist-author Donald Culross Peattie. (*Reviewed, SNL,* Aug. 23.)

Says Mr. Peattie: "What science has discovered is common property, and should be made easily available to all. This is not always remembered by a great many scientific writers who have never spoken outside of classrooms where attendance and attention are compulsory, never written a book which they could not order their students to buy. If the scientists practicing inside the college close are not always and widely understood, they may not be always and widely supported. They take that support for granted, along with their intellectual liberties. They had better look across the seas and ask themselves just how secure they are."

Science News Letter, August 30, 1941

MEDICINE

Recovery of 114 Burn Victims Effected With Sulfadiazine

Revolutionary Treatment May Eliminate the Need for Skin Grafting and Plastic Surgery to Efface Scars

SPRAYING sulfadiazine, one of the new miracle sulfa drugs, directly onto burns is being hailed as the most effective method of treating burns yet devised.

At the Johns Hopkins Hospital 114 badly burned patients were swiftly healed by the new method announced by Dr. Kenneth L. Pickrell, of the hospital's surgical department, in a report to the *Bulletin of the Johns Hopkins Hospital.*

Burned areas "healed more rapidly than with any form of treatment previously used at the Johns Hopkins Hospital," surgeons on the hospital staff declare. Some of them believe the sulfadiazine method will revolutionize the treatment of burns, eliminating the need for skin grafting and plastic surgery to efface scars and correct deformities.

No infection occurred in any of the 100 patients with second degree burns involving no more than one-fifth of the body surface who were treated in the out-patient department of the hospital. In only two of the 15 patients so badly burned they had to be admitted to the hospital was there any evidence of infection.

Toxic effects of the drug were seen in only one case, a four-year-old child brought to the accident room at the point of death with the entire body burned except for parts of the feet and ankles. This child, who died 48 hours later, was the only patient in the 115 who failed to recover.

No preliminary washing or cleaning of burned areas is needed in the new treatment. The nurse starts spraying the sulfadiazine while the surgeon is scrubbing his hands in preparation for removal of blisters and loose tissue. The sulfadiazine allays a great deal of the patient's pain and a narcotic may not be needed.

Patients with only second degree burns who do not have to be kept in the hospital are kept in the accident room for two hours during which the spray is frequently used. Before being sent home their burns are covered with either sterile vaseline gauze or a sulfadiazine ointment. The patients return for more spraying and new dressings until the burns have healed.

In the more serious cases, the patients are treated for shock and put to bed on sterilized sheets under a heat cradle to keep them warm. The sulfadiazine spray is continued, every hour at first, for four days. By this time a thin transparent scab forms through which the doctor can watch the healing of the burn and the growth of new skin tissues. The scab, though pliable, is strong and tough enough so that it does not break and the patient is encouraged to exercise and to use his arms, legs or other burned parts of the body. This keeps the skin and tissues from being pulled down or shrunk into the disfiguring and sometimes deforming scars called contractures.

After about 10 days the edges of the scab begin to loosen and separate from the skin beneath. At this time sulfadiazine compresses can be applied and in many cases sterile mineral oil sprays followed by salt solution compresses allow the scab to be removed in large sheets. In third degree burns the scab is left in place for at least two weeks.

Infection is a serious complication of burns which doctors have long tried to prevent, Dr. Pickrell points out. Among the preventive methods previously used are local application of tannic acid; gentian violet, a purple dye; and a combination of gentian violet, with two other dyes, brilliant green and neutral acriflavine.

The great effectiveness of the sulfa drugs in combating infection suggested to Dr. Pickrell that they might prove useful in preventing infections in severe burns. Use of sulfadiazine was started last January "with results which were so gratifying that this method has been applied routinely to the treatment of all burns that have since come to this hospital," he reports.

"This method of treatment has been found to be much superior to any of the other methods of treatment previously used here."

The sulfadiazine for the spray is used in a solution of 3.5% sulfadiazine in 8% triethanolamine. The ointment for covering burns in patients not requiring hospitalization consists of 5% sulfadia-

MODEL USED FOR TRAINING

This model steel mill manipulator which was operated by many visitors to the Westinghouse exhibit of the New York World's' Fair, is now contributing to the defense program by serving for instruction in a defense training class at Buffalo's Seneca Vocational High School.

zinc and 8% triethanolamine in a stearin base. No scab or slough forms unless the burned area is exposed as in hospitalized patients.

The sulfadiazine solution has a pH value of about 9. It is clear with a faint yellow color which may darken unless stored in dark bottles. It does not stain, is almost odorless, has a bitter taste, does not injure skin, mucous membrane or granulating surfaces and can be used safely in and around the eyes. It is a powerful penetrant and can be detected in the blood within several hours after having been sprayed on burned surfaces. For this reason Dr. Pickrell advises daily blood tests for sulfadiazine concentration in patients receiving multiple daily sprayings. After the scab has formed the amount of the drug in the blood rapidly approaches a minimum even though spraying is continued, and the drug can then be given by mouth if desired.

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ARCHAEOLOGY

Lack of Unity Sapped Defense When Aztecs Fought Spain

America's Famous Fighting Indians Were Defeated By Intrigue and Loss of Morale in Leaders

HOW America's famous fighting Aztec Indians suffered from paralyzed morale, when they went down to defeat before a handful of bold invaders from Spain, long ago, is told for modern America's information in a new book, *Aztecs of Mexico* by Dr. George C. Vaillant of the American Museum of Natural History. (*Reviewed, SNL, this issue.*)

Pronouncing conquest of the Aztecs the greatest feat in European occupation of aboriginal America, Dr. Vaillant states that the Aztecs put up one of history's most desperate defenses. How long Indians might have held off Europeans who had guns and other superior fighting equipment, no one can say. But beleaguered Aztecs struggled through a nightmare of psychological fears and political troubles strikingly like those that hasten downfall of nations attacked today.

"There seems to have been in the air that same sense of paralysis that the French knew to their cost in 1939 and 1940," writes Dr. Vaillant.

Montezuma, the Aztec war chief, had had his nerves shaken by a soothsayer's prediction that strangers would rule the land, and by a series of follow-up bad signs.

Lack of unity prevented Aztecs from marshalling their tribute-paying satellite tribes, to resist the invaders. The so-called Aztec Empire, says Dr. Vaillant, was really a multitude of independent city-states seething with intrigue and war, and separated further by differences in language, dialect, physical type and geographic economy.

Montezuma has been called an appeaser, says Dr. Vaillant. But the Aztecs were democratic in their theory of social organization, and Montezuma was no authoritarian ruler, but one who had to depend on group decisions and allegiances of vassal states.

Add to such problems, the Aztec pattern of war in which single battles often began and ended a campaign and ritual rules governed fighting. Europeans, then as now, fought realistically and pursued the old time-tried tactics of splitting an opposing army and destroying the weakened parts.

The Aztecs' war against the Spanish Conquistadores," writes Dr. Vaillant, "is an elusive example of the paralysis of the national morale, followed by a defense carried on with that courage found in forsaken men, in this case abandoned by their very gods. We have seen, in the bitter year of 1940, the same pattern repeated when France collapsed and England found a new strength in despair."

Describing the Aztecs' archaeological past and history of Spanish conquest in the Valley of Mexico, Dr. Vaillant, who has made many archaeological discoveries in the region, points out that since then the "Mexican Indians have endured and have done the work of Mexico for four centuries." Their role in Mexican affairs grows more active.

In these days when our whole American world has greater meaning for us, says Dr. Vaillant, we can think more deeply about the Indian colonists who built a new world in their time in the continent.

Science News Letter, August 30, 1941

PHOTOGRAPHY

Deterioration of Films Not Due to Cosmic Rays

THAT the deterioration of photographic films and plates with time, which requires an early development after exposure, is not due to cosmic rays, is shown by experiments of Wayne T. Sproull of the General Motors Research Laboratories in Detroit. (*Journal of Applied Physics,* August)

If the deterioration is principally due to cosmic ray action, then it should be shown more markedly by film manufactured expressly for use with X-rays, and therefore more sensitive also to cosmic rays, than by ordinary film. The effect shows itself principally as a general fogging of the film. The cosmic rays, which pour down continuously upon the earth and penetrate whatever wrappings or coverings protect the film, would be capable of such an effect.

In 1939 Mr. Sproull purchased some Eastman "Verichrome" film and some Agfa X-ray film. One half of each type of film was stored in a mine shaft 2057 feet below the surface of the ground where measurements by V. C. Wilson had previously shown that the cosmic ray intensity was about one twenty-thousandth of that on top of the ground. The remaining films were stored in an ordinary place in Detroit.

Two years later (1941) some of the mine-stored X-ray films were developed along with some of the X-ray films stored in Detroit, and a piece of new Agfa film. The films were developed and fixed together. The new film of course showed no fogging, but the other two were about equally fogged, showing that the cosmic rays were not a major factor in this deterioration.

Similar tests with the Verichrome film gave similar results.

If the cosmic rays were a major factor in film deterioration, the author states, there would be little prospect that a way could ever be found to prevent such deterioration. But since it appears to be due to temperature and humidity effect, there is still hope that a remedy will evenually be found.

Science News Letter, August 30, 1941

CHEMISTRY-MATHEMATICS

Group Of Elements Beyond Uranium Is Found Possible

Mathematical Researches Show That Group of Elements Similar to Rare Earths May Exist Near Uranic Atom

THE POSSIBILITY of a group of elements resembling the rare earths beyond uranium or element No. 92, once considered the uttermost outpost of the atomic system, has been demonstrated mathematically by Dr. M. Goeppert Mayer of Columbia University. (*Physical Review*, August)

The uranium outpost was passed some years ago by Prof. Enrico Fermi, Nobelist now working at Columbia University but then in Italy, with his discovery of the radioactive element No. 93, now called neptunium. Other "transuranic" elements supposedly discovered are short-lived and their existence has been doubted.

The chemical behavior of element No. 93 was determined in 1939 and 1940 by Dr. E. McMillan and Dr. P. H. Abelson at the University of California, who came to the conclusion that it was a rare earth and suggested that a second rare earth group might start at uranium. This is precisely what Dr. Mayer has proved to be mathematically possible. The problem had been previously discussed by Dr. H. C. Urey, Nobelist of Columbia University and Dr. Y. Sugiura, Danish chemist, on the basis of the old quantum theory. Dr. Mayer, using the newest quantum theory, has come to more definite results.

The group of rare earths occupies a quite anomalous position in the chemist's "periodic table" of the elements. This table classifies the elements into families having similar chemical properties, but also individual differences from the type, i.e., family resemblances and differences. Each element, except those belonging to the rare earth group, occupies a separate box to which belongs a certain group of chemical properties.

The rare earths consists of 15 elements belonging to the aluminum family. Their chemical properties are so similar that it is extremely difficult and sometimes impossible to separate them by chemical means. It is as though in a family, after a number of single births, suddenly a litter of 15 almost identical sons appeared. In the periodic table there is only one box reserved for the particular set of chemical properties shared by these 15 elements. So, all of them had to be crowded into this one box.

This curious situation is fully accounted for by Dr. Mayer's formulas. Her researches also show that the same conditions that cause it recur in the neighborhood of the uranium atom. Hence it is quite possible that a similar series of elements, almost identical in their chemical properties, exists in the transuranic region.

Science News Letter, August 30, 1941

ENGINEERING

Shortage of Airplane and Engine Mechanics Looms

WITH 74,000 military airplanes on order today, and 8 to 10 mechanics needed per airplane, the shortage of mechanics will run into the hundreds of thousands within two years unless something is done about it. This is the verdict of two surveys, one conducted by a government agency, the other by a committee of the Aeronautical Chamber of Commerce.

The surveys reveal that the private mechanics schools are operating at 50% capacity, and many are facing bankruptcy and their facilities are idle for lack of business.

Three reasons are cited by the school men for the low level of their business:

(1) Young men who would have gone to a mechanic's school, find that they can now get jobs without training because of the defense program.

(2) Selective Service has taken many young men who either were in school or would have gone to school.

(3) The Government is offering free vocational training which does not equip men to service airplanes, and this lures many men away from more expensive training.

Just how to utilize the private schools is a problem in Washington today, since the civilian government agencies are not as yet empowered to contract with them. Efforts are now being made to obtain a broader interpretation of the law so that this can be done.

The surveys suggest also that the schools stage an educational advertising campaign.

All Washington officials, they state, are agreed that unless the training of airplane and engine mechanics is speeded up, the shortage will soon become a major crisis of the defense program.

Science News Letter, August 30, 1941

SELF-CONTAINED

This sunlamp gives a wealth of ultraviolet and infrared radiation similar to that in summer sunshine. Unlike its numerous predecessors, it does not require special external control devices to operate. The ballast control, reflector, tungsten filament for infrared rays and the mercury arc for ultraviolet, are all built into a single, self-contained, sealed unit. The special glass of which it is made filters out harmful rays, so it does not require the user to wear goggles. Drawing 275 watts on 110-125 volt A. C. circuit, it gives at a distance of 30 inches biologically effective radiation two to three times as powerful as noon midsummer sunshine in the United States.

(General Electric)

PHOTOGRAPHY

Full Color Prints Now Available to Amateurs

FULL color prints can now be made from the usual Kodachrome transparencies. This has been the desire and dream of camera addicts ever since the introduction of the Kodachrome process in 1936.

These prints for amateurs are enlarged from either 35 millimeter or bantam size Kodachrome transparencies. Enlargements of twice and five times original size are available.

The Minicolor print has the feel of a fine playing card. However, the print support or base is not paper or card but pigmented cellulose acetate, the stuff of which safety films are made. The prints are doubly varnished; hence they are very durable and can be carried in the pocket without injury.

Professional grade prints are offered, under the trade name "Kotavachrome." These can be had in sizes up to 30 by 40 inches, a size never before successfully obtained in full color prints.

The Eastman Kodak Company warns that while the dyes used in these color prints are as stable as possible, consistent with their other requirements, they cannot be guaranteed not to change. The prints, they say, should not be exposed for long to direct sunlight.

At present both the amateur and the professional prints are made at Rochester.

Science News Letter, August 30, 1941

AGRICULTURE

Peaches From Pits in Two Years By New Method

FROM pits to peaches in two years is the record achieved by scientists in the University of California College of Agriculture.

Dr. W. E. Lammerts of the University of California faculty has devised a new method of speeding up nature's normal growth processes, which he calls embryo culture. Kernels are removed from the hard pits and soaked in a nutrient solution of agar, sugar and vitamin B_1 for three weeks. They sprout rapidly with such coddling and are then removed to clean washed sand, where they are kept moist for three weeks longer. Seedlings are by then large and husky enough to be placed in soil-filled pots. By the time they are nine months old, they are ready for field planting, and by their second birthday the young trees are the proud producers of fine peaches.

"The significant facts about speeding up nature's normal routine," said Dr. Lammerts, "is that the two-year breeding cycle makes it possible to study such characteristics as skin and flesh color, free or clinging pits, and chilling requirements. Accordingly, undesirable seedlings may be removed and self and back-cross pollinations may be made every two years—all of which in the long run, will mean bigger and better peaches for the consumer."

Dr. Lammert's experiments have been carried on for about five years at the Armstrong Nurseries in Ontario, Calif., near Los Angeles. Over 5,000 cross-pollinated seedlings have been grown and studied in that time. The embryo cultured seeds have a much higher percentage of germination than may be expected from ordinary sprouting methods.

Science News Letter, August 30, 1941

MEDICINE

Certain Local Anesthetics May Check Sulfa Drugs

SURGEONS spraying or dusting sulfanilamide or related chemicals on wounds to check infection may find the sulfa drug ineffective if novocaine, procaine, or chemically related local anesthetics have been used before the operation or before dressing the wound. Local anesthetics of the novocaine type, derived from para aminobenzoic acid, partially or completely blocked the germ-checking action of sulfapyridine and sulfathiazole in test tube experiments reported by A. K. Keltch, Linville A. Baker, M. E. Krahl, and G. H. A. Clowes, of the Lilly Research Laboratories, to the Society for Experimental Biology and Medicine.

Local anesthetics that were not derived from para aminobenzoic acid did not show any antagonism to the sulfa drugs tested.

The antagonism between para aminobenzoic acid itself and sulfapyridine and sulfanilamide in test tube experiments was discovered by a British scientist, D. D. Woods. The fact that the sulfa drugs are being increasingly used both on the wound and by mouth in war wounds and other types of surgery in which local anesthetics are commonly used at the same time, led the Indianapolis scientists to investigate the effect of various anesthetics on the action of the sulfa drugs.

Science News Letter, August 30, 1941

IN SCIENC

BOTANY

End Sterility of Flowers To Their Own Pollen

FLOWERS unable to produce seed when self-pollinated can be made self-fertile by spraying their flowers with a solution of alpha naphthalene acetamide, reports Dr. William H. Eyster of Bucknell University. Dr. Eyster was able to obtain good crops of seed from a very desirable but self-sterile new variety of petunia by this treatment, and has conducted sufficient experiments on other plants to convince him that the method is of general value. (*Science,* Aug. 8)

Self-sterility in plants that ordinarily reproduce by means of seed is a great annoyance to florists and seedsmen, because it often frustrates their hopes of putting fine new varieties on the market. If you can't raise seeds, obviously you can't sell them. The new treatment therefore has practical value.

Dr. Eyster found, in the case of his petunia, that the ovary, or seed-producing part of the flower, interfered with fertilization by secreting some substance that prevented the normal functioning of the pollen. The chemical spray (which is very dilute, 10 parts of the compound to a million of water) apparently destroyed this inhibiting substance or at least prevented it from acting.

Science News Letter, August 30, 1941

ENTOMOLOGY

More Than a Million for Defense Against Mosquitoes

MORE than a million dollars — $1,192,000, to be exact—will be spent during the coming twelve months on anti-mosquito defense in and around the 53 major military areas where U. S. troops are quartered, the *Journal of the American Medical Association* states. (Aug. 9)

A little over a third of the total sum will be used by the medical department, the remainder by the quartermaster department. The work will be done by civilian specialists and laborers, under the direction of 87 sanitary engineers, all of them mosquito eradication experts.

Science News Letter, August 30, 1941

ICE FIELDS

MEDICINE

Use Plastic Surgery In Removing Tonsils

NOW it's plastic surgery for the tonsils instead of the old rough-and-ready tonsil-snatching operations generally frowned on by modern physicians.

With one and one-half minutes of deft work, after the tonsils are out, the surgeon can cut and turn back a flap to cover the sore spots on the throat, Dr. Robert H. Fowler, of New York, declares in reporting this new style tonsil removal. (*Journal, American Medical Association,* Aug. 2)

"The patient eats breakfast the next morning," he reports. "The time for the wound to cover over is lessened by half, and the amount of scarring is almost nil."

The patient is no longer required to suffer great pain and endure a 10-day period of discomfort and soreness because he does not have, as formerly, "a large open wound set to catch food and become infected."

The plastic operation can be done with either local or general anesthetic. It is more difficult in small children, Dr. Fowler points out, and the surgeon must have a clear understanding of the anatomy of the tonsillar region of the throat and of the technic of the operation in order to achieve success.

Science News Letter, August 30, 1941

MEDICINE

Army Makes 8,500 Gallons of Typhoid Vaccine

TYPHOID vaccine production is big business at the Army Medical School in Washington. During the fiscal year, recently closed, the turnout was 33,500,000 cubic centimeters, or about 8,500 gallons, representing more than an eightfold increase over the previous year. This is enough vaccine to provide over 8,000,000 "triple-shot" courses. By making its own vaccine, the Army saved the government $1,540,000 over what it would have cost at the regular market rate.

Besides giving all soldiers in the Army protection against typhoid, the medical department is furnishing vaccine to other government departments, including the U. S. Public Health Service, the Navy, the Civilian Conservation Corps, the Department of Justice, the Indian Service, the Veterans' Administration, the Government of Puerto Rico and many others. Stock culture for the vaccine has also been furnished on request to other nations in the Western Hemisphere.

All the vaccine is based on germs taken from the body of one man, an immune typhoid fever carrier who lives in the Panama Canal Zone, and is kept under constant supervision by Army physicians. The cultures are preserved in glass tubes, superfrozen at a temperature of 108 degrees below zero and sealed in a partial vacuum. In this state the cultures can be kept for long periods. The laboratory where the vaccine is made is the largest and most modernly equipped of its kind in the world.

Science News Letter, August 30, 1941

ENGINEERING

Warns Against Hurts from Diesel Oil Under Pressure

WARNING of the danger of serious accidental injuries from the high pressure oiling and greasing appliances now widely used in industry appears in a report by Dr. John E. Hughes, of Shawnee, Okla. (*Journal, American Medical Association,* June 28.)

The middle and ring fingers of a young oil field worker's hand had to be amputated because of gangrene following such an injury, Dr. Hughes reports. The worker had been cleaning the nozzle of a Diesel engine and had his left palm in contact or nearly in contact with the nozzle when his helper tripped the compressor. A little of the highly volatile Diesel oil, about one-half teaspoonful, was shot into the man's hand through the pin-point openings in the nozzle under such pressure that it penetrated the skin and tissues and caused the extremely painful and severe injury which resulted in the loss of two fingers.

This is not the first of such cases reported, Dr. Hughes points out. In one of the others the injury was caused "by a grease gun commonly used in garages to force grease and oil-laden graphite into spring shackels and other friction parts. This modern appliance," he comments, "is a far cry from the hand grease gun and screw grease cap in common use a few years ago."

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PHYSIOLOGY

Vitamin Enables Animals To Use Less Oxygen

OXYGEN starvation of the tissues can be fended off by injections of ascorbic acid, the vitamin that prevents scurvy, reports J. M. Peterson of the Physiology Institute of Cardiff, Wales. (*Nature,* July 19). One of his fellow workers, Dr. B. G. B. Lucas, put pairs of mice, one injected with the vitamin, the other without injection, into air at only about one-eighth of normal atmospheric pressure. The treated mice survived, while their companions died. The same result could be obtained with injections of the common dye, methylene blue.

While Mr. Peterson does not suggest applications of these findings to human beings, it seems possibe that injections or heavy feedings of ascorbic acid might be beneficial to aviators, mountain-climbers and other persons exposed frequently or for long periods to atmospheres too rare to yield a normal supply of oxygen.

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ENTOMOLOGY

First Frosts Bring Oriental Mantises

See Front Cover

BEFORE long, as first hints of frost get into the autumn air, you will see these great, spectral-looking insects, the Oriental mantises. They've been all about during the summer, stalking their insect prey in the trees and shrubbery, but they have kept out of sight. As the days shorten and the nights grow cool they forsake their seclusion and take to wandering. They even turn up in the middle of great cities.

There is a native American mantis, a much smaller insect that most of us seldom see at all. This giant relative is a native of eastern Asia, and was brought to this country many years ago. It is (for a wonder!) a beneficial insect rather than a pest, for it is highly carnivorous, feeding on grasshoppers and other undesirables. Incidentally, the females also eat their mates; nothing is wasted in the mantis world. All the specimens you will find will be females.

The photograph on the front cover of this week's SCIENCE NEWS LETTER was taken by George A. Smith of Quarryville, Pa.

Science News Letter, August 30, 1941

ASTRONOMY

Planets Parade

From Sunset to Dawn They Appear—Venus, Then Mars, Saturn and Jupiter, the Last Rising About Midnight

By JAMES STOKLEY

SEPTEMBER nights bring a parade of bright planets. From sunset to dawn at least one is always visible, and at some hours there are more.

As soon as the sun has set, and darkness begins to fall, look to the west, and there (if it is clear) brilliant Venus will be seen. Its magnitude is minus 3.5, so it far exceeds any other star or planet. About an hour and 20 minutes after sunset, just as twilight is ending over most of the United States, Venus sets.

But by that time Mars, which rises about an hour after sunset, will be on view in the east, in the constellation of Pisces, the fishes. Its location is shown on the accompanying maps, which depict the skies at about 10:00 p.m., standard time, on Sept. 1, and at 9:00 p.m. on the 15th of the month. Though not as bright as Venus, Mars is of magnitude minus 2.1, which makes it brighter than any object (except the moon) seen through the evening. Also, its red color makes it easy to identify. It continues visible until dawn.

About three hours after sunset, too late to be shown on the map, Saturn rises, in the constellation of Taurus, the bull. Its magnitude is plus 0.2, still brighter than most of the stars.

Last in the procession to appear is Jupiter, which comes up about midnight, also in the figure of Taurus. Of magnitude minus 2.0, he is almost as brilliant as Mars.

Vega Is Brightest Star

Among the stars, Vega, in Lyra, the lyre, is the brightest on September evenings. This is high in the west. Directly overhead is Cygnus, the swan, with Deneb as the most conspicuous star. A little south of Cygnus is Altair, marking Aquila, the eagle.

Three more stars of the first magnitude are indicated on the maps, but all are quite low. Capella, in the northeast, shows the location of Auriga, the charioteer. In coming months this will be on better evening view. Low in the south is Fomalhaut, of Piscis Austrinus, the southern fish, one of the most southerly conspicuous constellations seen from these latitudes. And low in the northwest, about to disappear from view for a few months, is Arcturus, in Bootes, the bear-driver.

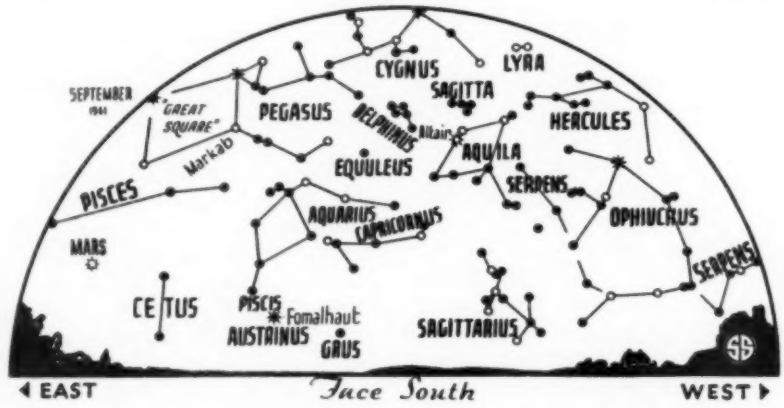
Two eclipses are on the celestial program for September, but, for various reasons, probably neither will be much observed. First is a partial eclipse of the moon on Sept. 5, which will not be seen from the United States, though Alaska will get a glimpse. It will be visible generally over the eastern hemisphere.

Even there, however, it will not be much of an eclipse, for the moon just barely enters the earth's shadow. At the maximum, only about a twentieth of the moon's diameter will be covered. Where this is seen, the moon, in the full phase as it must be at a lunar eclipse, will show a reddish segment of the terrestrial shadow at its edge. Even total eclipses of the moon are of little scientific value. This has practically no astronomical interest at all.

This cannot be said, however, of September's second eclipse, a total of the sun, on the twenty-first. Were it not unfortunate enough to come to a warring world, it would have been very well observed, with expeditions from the United States and England, among others, traveling to the path where it is seen.

The tip of the moon's shadow first touches earth in southeastern Russia, in the Caucasus, just as the sun rises there. This will be at 10:00 p.m., Sept. 20, by eastern standard time. Then the shadow sweeps across the Caspian Sea to Siberia, then to China, crossing the cities of Hankow and Nanchang, then to the Pacific Ocean, crossing the Japanese islands north of Guam. The shadow leaves earth in mid-Pacific, as the sun is setting, at 12:07 a.m., Sept. 21, E. S. T.

More than a year ago, Soviet scientists began preparations for one of the most elaborate eclipse observing programs ever



☼ ✱ ○ • SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

planned. Probably the war will divert the Russian attention to other activities now. However, a complete publication telling what could be done was published some time ago, and perhaps will guide isolated groups in making their observations.

In Japan, and in the occupied parts of China, where the eclipse is visible, it is likely that Japanese astronomers will make some studies, despite war, as there are several large and active observatories in Japan. The most favorable location, astronomically, from which to see the eclipse, will be in the vicinity of Hankow. There the sun will be at its highest, and will be completely covered for 3 minutes 21 seconds.

Two days after the eclipse, on Sept. 23, at 5:33 a.m., E. S. T., the sun will be directly over the equator. This, the autumnal equinox, marks the beginning of autumn.

Celestial Time Table for September

Friday, Sept. 5, partial eclipse of moon, not visible in U. S.; 12:36 p.m., full moon. **Monday, Sept. 8,** 9:15 p.m., moon passes Mars. **Thursday, Sept. 11,** 8 a.m., moon farthest: distance 251,500 miles; 5:00 p.m., moon passes Saturn. **Saturday, Sept. 13,** 1:16 p.m., moon passes Jupiter, 2:31 p.m., moon in last quarter. **Saturday-Sunday, Sept. 20-21,** total eclipse of sun, not visible in U. S. **Saturday, Sept. 20,** 11:38 p.m., new moon. **Tuesday, Sept. 23,** 5:00 a.m., moon nearest: distance 225,600 miles; 5:33 a.m., autumnal equinox, autumn commences 6:44 p.m., moon passes Venus. **Saturday, Sept. 27,** 3:09 p.m., moon in first quarter. Eastern standard time throughout.

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PHYSICS

Yellow Lamps No Better At Piercing Fog

THAT yellow light is no better at piercing fog than the light of an ordinary tungsten lamp is shown by experiments recently carried out by Dr. Matthew Luckiesh, research physicist and Franklin medalist, and L. L. Holladay, of the Lighting Research Laboratory of the General Electric Company, Nela Park, Cleveland. (*Journal, Optical Society of America,* August)

The so-called fog-lamps, consisting of yellow lenses which absorb from 20% to 35% of the tungsten-filament light, the report states, must contribute something to the seeing to offset the loss due to less light. No satisfactory tests have been published, but the present investigation makes it more than unlikely that they have any advantage.

Similar fog-piercing claims have been made for the new sodium lamps. In this case there is no loss of light by colored filters, for the light is inherently yellow and practically monochromatic. Yet even this lamp showed no significant superiority over the tungsten lamp in fog-penetrating qualities.

The two lamps of equal intensity were tested side by side in clear weather, moderate fog, dense fog, mist, and snow. They were tested by day and by night. Also a pair of lamps of low intensity and a pair of high intensity were used. Many experienced observers made many readings on a Luckiesh-Moss visibility meter at a distance of 1,000 feet. No significant differences showed in the averages.

The report explains that the fog-penetrating power of a light does indeed depend on its color or wave-length, as has been generally known. Thus blue light, which is of short wave-length, penetrates fog less than red light, which is of long wave-length. The sodium lamp emits yellow light that is practically of a single

wave-length. This wave-length is about midway between those of the red and blue lights. Hence the fog-penetrating power of the sodium light is just about middling.

The white light of the tungsten filament contains all the colors from red to blue. It is true that the blue rays are cut down by the fog, but the remaining red rays have a fog-penetrating power superior to the yellow light of the sodium lamps. This evens the score.

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PSYCHOLOGY

National Hates and Loves Built Up by 'Conditioning'

A People May Be "Conditioned" To Follow a Leader Or Hate a Political System Like Rats in Laboratory

A NATION going to war is like the animal in a laboratory maze artificially "conditioned" by the psychologist to turn to the right or to the left.

This picture of a mass of people led blindly to destruction by false ideas is painted by Dr. Trigant Burrow, scientific director of The Lifwynn Foundation, New York City.

A whole people, he says, like an individual, may build up emotional prejudices attached to slogans or symbols which become obsessions and which completely dominate their behavior.

They may be conditioned to follow fanatically this or that leader and to hate this or that political system in exactly the same way that a rat is conditioned to go down the right alley of a maze and to avoid the left one.

In the laboratory of phylobiology established by Dr. Burrow and his associates it has been shown that individuals and peoples are trained to attack emotional prejudices or affects to mere symbols—political, economic or religious—and that these symbols have induced reactions in us that are now definitely pathological. Our likes and dislikes, allegiances and hates have nothing to do with the natural requirements of the organism—the individual's own inborn needs.

In Dr. Burrow's experimental work with individuals and social groups he finds that stimuli symbolized as "right" and stimuli symbolized as "wrong" have placed man in a position identical with that of the experimental animal.

When the laboratory rat finds the turnings in his maze becoming more and more difficult and the "right door" looking more and more like the "wrong door," he becomes confused. His behavior is disorganized. He may run senselessly about in purposeless circles. He has fallen victim to a "neurosis."

So with man and his dilemma of right and wrong. As Dr. Burrow points out, whole peoples have become neurotic in trying to find their way through a bewildering maze of artificial prejudices and ideologies. The foundation of man's world is threatened by the hostility of factions with opposing emotional attachments.

Nations have broken down and run amok.

When war is over and the "new social order" is established, the world's ills will not be cured, he says, by any political demagogue with a partisan ideology.

We need to look to scientists trained in the understanding of human behavior, as they alone can reckon with the conflict in man's organism and his resulting "social neurosis."

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A kind of *cyperus*, close relative of papyrus that Egyptians used as writing "paper," grows in Louisiana, but the American plant is rated useless as writing material.

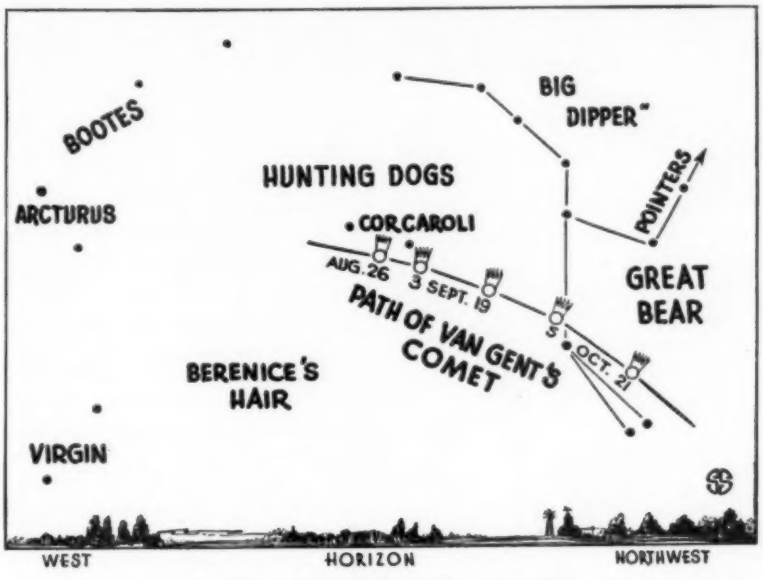
● RADIO

Thursday, September 4, 2:45 p.m., EST

On "Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Lt. Col. Edwin S. Van Deusen, of the Motor Transport Division of the Quartermaster General's Office, will tell how Uncle Sam transports his Army by motor.

Listen in each Thursday.



PATH OF NAKED-EYE COMET

PHYSIOLOGY

Oxygen Cocktail To Start Day Is Speech Teacher's Tip

TAKE an oxygen cocktail to start the day, is the advice of Mrs. Elisabeth F. von Hesse, who has gained considerable public notice as the speech teacher of Eleanor Roosevelt, and whose new book, *So to Speak* is just published. (*Reviewed, SNL, this issue*)

Mrs. von Hesse's oxygen cocktail goes down like this: "Stand before an open window and, taking each nostril in thumb and forefinger, pull the nostrils wide, keeping thumbs out of the way, inhale a long deep breath through nostrils."

The idea, she explains, is to think of the breath channel as a question mark beginning at the nostrils and curving up over the head and then down the spine to the back of the waist. The cocktail fills lowest cells of the lungs at the back with air, and the long draught should be held for a moment, then exhaled with a long-exhaled hissing sound. Five oxygen drinks to start the day is the ration, and if you feel dizzy at first, it is merely a sign that your bloodstream has been getting short-rationed on oxygen.

Mrs. von Hesse, who has designed exercises for speech students, including a six-way-stretch stunt, says that Americans are becoming more speech-conscious, more accustomed to listening to their own voices, but many still mumble, twang, whine, chew words, whoop, or boom.

To hear the purest tone in human speech, listen to "the lovely, happy voice of a normal child," recommends Mrs. von Hesse. Adults who have bad speech faults usually acquired them from similar speech habits in the voice of the mother or teacher whose voice the child heard constantly during impressionistic years, she warns.

Yelling approval during ball games is blamed by Mrs. von Hesse for voice strain and loss of attractive tone. She wishes that America, particularly teen age America, would vent enthusiasm by clapping or jumping up and down.

With America becoming much interested in radio careers, she suggests telling youngsters that yelling is bad for a radio voice.

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ASTRONOMY

Van Gent's Comet Now Visible to Naked Eye

A COMET bright enough to be seen with the naked eye is now in the northern sky.

Van Gent's comet, named after the astronomer at the Johannesburg Observatory in South Africa who discovered it in May, is now well above the sixth magnitude, faintest at which a star, under best conditions, can be seen without aid of a telescope. A comet is a little harder to see, because, unlike a star, its light is diffuse, and not concentrated in a point.

During the end of August and early September, Van Gent's comet, according to a schedule prepared by Dr. George Van Biesbroeck, comet expert of the Yerkes Observatory, reaches its brightest, with magnitude 4.8. By mid-September it will be drawing away from the sun, though it will come closer to the earth, and will be fainter. But even in early October it will be of magnitude 5.6, still above the naked eye limit.

If you want to see this comet you should look to the northwest as soon as it gets dark. You can easily, if it is clear, find the big dipper, part of Ursa Major, the great bear. Around Sept. 1, as shown on the accompanying map, the comet will be directly under the end of the dipper's handle, which extends to the left. Unfortunately, about this time, the moon, full on Sept. 5, will be very bright and add to the difficulties.

The moon reaches last quarter, when it does not rise until about eleven o'clock, on Sept. 13, and then the comet will still be nearly as bright as a week or two earlier.

In the glare of a large city, and with the smoke and dust usually surrounding such an area, it will probably not be possible to see the comet, at least not with the naked eye. However, if you use a pair of binoculars, and look carefully at the region indicated, you may be able to find it. And if you are able to get away from the city to a place where there is a clear northern sky, the binoculars will also help you locate it. Then, having found it, you can probably pick it up without the glasses.

Van Gent's comet has a short tail, points upwards, since all comet tails point away from the sun. The tail consists of fine dust gases which are discharged from the nucleus as it approaches the sun. Because these weigh so little, they are actually pushed by the pressure of light from the sun, just as wind pushes the smoke from a locomotive as it moves along.

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PSYCHOLOGY

'Shell-Shock' of First War Now Is 'Blast-Concussion'

Caused by Exposure to Explosion, It Bears No Relation to Morale, Courage or Discipline

SHELL-SHOCK, so common in the World War of 1914-1918, is not mentioned in this World War. Somehow, the erroneous idea got around that shell-shock was the same as nervous breakdown from fear and resulted from moral weakness. The brave, the strong, the disciplined, were supposed to be immune to shell-shock.

But British psychologists tell us that it has not been possible to wipe out shell-shock by forbidding it a name or by assuming that it is immoral. The same symptoms occur. Now they are called "blast-concussion."

In the midst of the Blitz, English psychologists held a meeting in Nottingham, and were told by Dr. H. Crichton-Miller what air bombardment does to the civilian. The gist of what he said has recently reached the United States in a report to the journal *Nature* by Prof. R. J. Bartlett of King's College, London.

"The incalculable effect of blast on plate-glass windows is a commonplace," the report states. "It is reasonable to suppose that similar effects of compression and suction on elastic abdominal walls displace the fluids of the body with extreme violence to and from the skull-contained brain. The strain thus imposed upon the delicate structure of the central nervous system is severe and in fatal cases punctate hemorrhages are found, post mortem, not only in the meninges but also throughout the brain substance.

"Blast-concussion, in varying degrees of severity, is to be expected after exposure to an explosion. It bears no relation to morale, courage, discipline or any other ethical virtue."

The effect of the shock, it is pointed out, will differ, however, according to the mental and physical condition of the victim. Individuals suffering from acute anxiety will be affected differently from those knocked out instantly with no time to be frightened.

The blast-concussion victim who is also wounded is in a relatively happy condition. No one takes him for a malingerer. He is insured the rest that is essential for cure of concussion. For this reason, the worst effects of blast-concussion are in the unwounded.

The psychological effects of air raids on persons not exposed to blast also depends on physical and mental condition of the individual.

"An exhausted man, with his supply of blood sugar at fasting level or below it, reacts badly to fear of death or danger," the report states. "Anemia and anoxemia (lack of oxygen) lead to despondency, apathy and inertia on one hand and to mental confusion and uncontrolled behavior on the other. Toxemia lowers the whole resistance of the organism. With women, there is also the varying emotional effects of the menstrual cycle, lactation and the climacteric."

Normally, it is explained, fear influences the adrenal glands and prepares the body for "fight or flight." This is good for the soldier about to attack. But for the civilian under bombardment who can neither fight back nor flee, fortitude, endurance and self-control are needed.

He must endure the strain in one way or another. If his way is one of silence and inhibition, the price is anxiety. If he expresses his fear, the result is called hysteria.

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CHEMISTRY

Tubal-Cain Acclaimed As Pioneer Chemist

TUBAL-CAIN, described in the Bible as "instructor of every artificer of brass and iron," should be honored as the first chemist of record, the American Chemical Society has been advised by Dr. John T. Chappel of New John Fletcher College, University Park, Iowa.

The amount of chemistry in the Bible surprises Dr. Chappel. Seven metals are mentioned: gold, silver, copper (called brass), iron, steel, lead, and tin. Dyes of blue, purple, scarlet, crimson, vermilion, red, sorrel, and black are referred to. Sulfur and the art of tanning were known. The Israelites made bricks and mortar, used lime and plaster in building. Other objects, which, according to Dr. Chappel must have involved some chemistry, are incense, oil for light, anointing oil, wax, salt, soap, ink, wine, and vinegar.

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•First Glances at New Books

Additional Reviews On Page 144

PSYCHOLOGY

SYMPOSIUM ON RECENT ADVANCES IN PSYCHOLOGY; Papers Read Before The American Philosophical Society, Annual General Meeting, April 25, 1941—*American Philosophical Society,* 102 p., 75c. Of interest to layman and scientist alike is this group of papers by Drs. Karl S. Lashley, Arnold Gesell, Wolfgang Köhler, Edward L. Thorndike, Carney Landis, Robert M. Yerkes and Edward C. Tolman. The contributions of Dr. Yerkes and Dr. Tolman have a special significance in connection with present world conditions.

Science News Letter, August 30, 1941

ANTHROPOLOGY

AZTECS OF MEXICO, Origin, Rise and Fall of the Aztec Nation—George C. Vaillant—*Doubleday. Doran,* 340 p., lus., $4. See page 134.

MEDICINE

PAPERS OF WADE HAMPTON FROST, M.D., A Contribution to Epidemiological Method — Kenneth F. Maxcy, ed. — *Commonwealth Fund,* 628 p., $3.

Science News Letter, August 30, 1941

ENGINEERING

HIGHWAY RESEARCH BOARD, Proceedings of the Twentieth Annual Meeting Held at Washington, D. C., December 3-6, 1940—Roy W. Crum, ed. — *Natl. Research Council,* 883 p., illus., $3.25.

Science News Letter, August 30, 1941

CHEMISTRY

EMULSIONS AND FOAMS—Sophia Berkman and Gustav Egloff—*Reinhold,* 591 p., illus., $8.50. Emulsified oils useful in medicine, chemistry and industry, such hydrocarbon emulsions as asphalt, bitumen and lubricating-oil emulsions, and foams used industrially are covered theoretically and practically. Preventive measures are also covered in this very complete work.

Science News Letter, August 30, 1941

PHYSICS

FUNDAMENTALS OF PHYSICAL SCIENCE, An Introduction to the Physical Sciences —Konrad Bates Krauskopf—*McGraw-Hill,* 660 p., $3.50. Starting with a section on the solar system, then to such topics as "matter and energy", "fundamental processes", to end with "stars and galaxies", this book is intended to summarize man's knowledge about the world in which he lives. Refreshing is the admission of some uncertainties — the statement, for example, that "the earth's origin remains cloaked in mystery."

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PHYSIOLOGY

SO TO SPEAK, A Practical Course to Develop Poise and Personality Through Effective Speech—Elisabeth Ferguson von Hesse—*Stokes,* 498 p., $3. See p. 141.

Science News Letter, August 30, 1941

CHEMISTRY

TEXTBOOK OF CHEMISTRY — Albert L. Elder—*Harper,* 751 p., illus., $3.75. This excellent new text for a beginning course in college chemistry, approaches the subject by way of physical chemistry, devoting the opening chapters to atomic structure, including nuclear transformations.

LABORATORY MANUAL FOR GENERAL CHEMISTRY—Albert L. Elder—*Harper,* 259 p., $2. A manual designed for use with the same author's "Textbook of Chemistry."

Science News Letter, August 30, 1941

PHYSIOGRAPHY

THE EARTH AND ITS RESOURCES, A Modern Physical Geography—Vernor C. Finch, Glenn T. Trewartha and M. H. Shearer—*McGraw-Hill,* 634 p., illus., $2.40. A textbook in physical geography, for high school use.

Science News Letter, August 30, 1941

CHEMISTRY

AN INTRODUCTION TO QUANTITATIVE CHEMICAL ANALYSIS—Warren C. Vosburgh—*Holt,* 356 p., $2.75. A new text designed for a one semester course "in which theory and practice are given about equal weight."

Science News Letter, August 30, 1941

FORESTRY—AGRICULTURE

FORESTRY IN FARM MANAGEMENT—R. H. Westveld and Ralph H. Peck—*Wiley,* 339 p., illus., $3. A thoroughly practical book that should form the foundation of a required course for every student in agricultural colleges—and be carried home for frequent reference after graduation.

Science News Letter, August 30, 1941

BIOLOGY

GENERAL BIOLOGY (Rev. ed.)—James Watt Mavor—*Macmillan,* 897 p., illus., $4. New edition of a well-received textbook for college use.

Science News Letter, August 30, 1941

GEOGRAPHY

OUR LATIN AMERICAN NEIGHBORS — Philip Leonard Green—*Hastings House,* 182 p., $2. A pleasantly written book on that popular subject, what the Latin Americans are like, their psychology, historic and cultural background, their great men and their place in Western Hemisphere affairs.

Science News Letter, August 30, 1941

PHYSICS

PHYSICS FOR SECONDARY SCHOOLS (rev. ed.)—Oscar M. Stewart and Burton L. Cushing—*Ginn,* 760 p., illus., $1.80. This revised edition incorporates changes suggested by the experience of teachers who have used it as a text.

Science News Letter, August 30, 1941

ZOOLOGY

MAMMALS OF THE LAVA FIELDS AND ADJOINING AREAS IN VALENCIA COUNTY, NEW MEXICO—Emmet T. Hooper — *Univ. of Mich. Press,* 47 p., 3 pl., 50c.

Science News Letter, August 30, 1941

PUBLIC HEALTH

THE UNIVERSITY AND PUBLIC HEALTH STATESMANSHIP—Arthur P. Hitchens and others—*Univ. of Penn. Press,* 33 p., 50c. Addresses from the University of Pennsylvania Bicentennial Conference.

Science News Letter, August 30, 1941

LIBRARY SCIENCE

LIBRARY OF CONGRESS RULES FOR FILING CARDS IN A CARD CATALOG, A Tentative Interpretation—Laurence E. Tomlinson, comp.—*Published by author, Baylor University Library, Waco, Texas,* 39 p., $1. An extremely useful booklet for use in libraries. It will save much time and confusion to have one or two of these available for use by assistants filing cards, as well as library patrons.

Science News Letter, August 30, 1941

MEDICINE

THE MEDICAL CLINICS OF NORTH AMERICA—Saunders, bimonthly, paper, $12 per clinic year; cloth, $16 per clinic year. May 1941, Vol. 25, No. 3, New York Number, 266 p.

Science News Letter, August 30, 1941

BIBLIOGRAPHY

BIBLIOGRAPHY, A Beginner's Guide to the Making, Evaluation and Use of Bibliographies—Marion Villiers Higgins—*Wilson,* 42 p., 60c. A brief, well-arranged text for first year library school students.

Science News Letter, August 30, 1941

•First Glances at New Books

Additional Reviews On Page 143

PHYSICS

NEW ELEMENTARY PHYSICS—Robert Andrews Millikan, Henry Gordon Gale and James P. Coyle—*Ginn.*, 637 p., illus., $1.80. This is the latest revision of a work originally published in 1906 and in which, in a long succession of editions, under varying titles, many a physicist had his first introduction to his subject. Such up-to-date topics as air conditioning, television, cosmic rays, transmutation of elements, etc. are included. For the first time, a new name appears on the title page as collaborator, that of James P. Coyle, head of the department of physics of Lane Technical High School, Chicago.

Science News Letter, August 30, 1941

ENGINEERING

A YARDSTICK FOR THE EVALUATION OF A FORCED WARM AIR HEATING SYSTEM—*National Warm Air Heating and Air Conditioning Assn.*, 23 p., illus., 25c.

Science News Letter, August 30, 1941

ASTRONOMY

SPEAKING OF EARTH—Gertrude Gouvy—*Bruce Humphries*, 64 p., illus., $1. A little book on astronomy for children illustrated with numerous diagrams prepared in an amusing cartoon fashion.

Science News Letter, August 30, 1941

MATHEMATICS

GUIDE TO TABLES IN THE THEORY OF NUMBERS—Derrick Henry Lehmer—*National Research Council*, 177 p., $2.50. (Bulletin No. 105.) A guide to the many tables concerning the theory of numbers that are scattered throughout the literature, and an extensive bibliography, by the author of the *Factor Tables and the List of Prime Numbers* of the Carnegie Institution. An extremely valuable feature of the present work is a list of all known errata in all the tables surveyed, which until now were still more scattered and unavailable than the tables.

Science News Letter, August 30, 1941

TECHNOLOGY

PLASTICS IN INDUSTRY—"Plastes"—*Chemical Pub. Co.*, 241 p., $5. In this book plastics are described from celluloid (1875) down to synthetic rubber and nylon of the present day. The author does not go deeply into the chemistry of the subject, but gives the ingredients from which the various plastics are made, and describes the machinery for moulding them. Applications are discussed to the electrical, automobile, aircraft, textile, building, and furniture industries, as well as innumerable miscellaneous uses down to false teeth.

Science News Letter, August 30, 1941

ENGINEERING

CROSBY-FISKE-FORSTER HANDBOOK OF FIRE PROTECTION (9th ed.)—Robert S. Moulton, ed.—*National Fire Protection Assn.*, 1308 p., $4.50. This is a complete revision of the 8th edition published in 1936, with detailed treatment of the numerous new developments in fire protection during the past five years and revision of all data that have become obsolete.

Science News Letter, August 30, 1941

PHOTOGRAPHY

THE SCIENTIFIC PHOTOGRAPHER—A. S. C. Lawrence—*Cambridge (Macmillan)*, 180 p., illus., $3.75. This carefully written and authoritative work will fill a need, for there has been no recent book, dealing with the important uses of photography in science.

Science News Letter, August 30, 1941

GENERAL SCIENCE

BOYS' BOOK OF SCIENCE AND CONSTRUCTION (rev. ed.)—Alfred P. Morgan—*Lothrop, Lee & Shepard*, 448 p., illus., $2.50. For boys who want to experiment there are presented many of the fundamental principles and demonstrations of simple physical science.

Science News Letter, August 30, 1941

HISTORY

THE UNTAMED BALKANS—Frederic W. L. Kovacs—*Modern Age Books*, 248 p., $2. A news correspondent, a native of Southeastern Europe, gives us his commentator's account of the Balkan pattern, Balkan relationships to Hitler and the Soviets, and the "shape of things to come."

Science News Letter, August 30, 1941

ARCHAEOLOGY

ARCHAEOLOGICAL INVESTIGATIONS AT BUENA VISTA LAKE, KERN COUNTY, CALIFORNIA—Waldo R. Wedel and T. D. Stewart—*Govt. Print. Off.*, 194 p., 57 pl., 55c. Bureau of American Ethnology Bulletin 130.

Science News Letter, August 30, 1941

ZOOLOGY

CHECK-LIST OF THE TERRESTRIAL AND FRESH-WATER ISOPODA OF OCEANIA—Harold Gordon Jackson—*Smithsonian Institution*, 35 p., 15c. (Smithsonian Misc. Coll. Vol. 99, No. 8.)

Science News Letter, August 30, 1941

ENGINEERING—BIOGRAPHY

SPEED, The Authentic Life of Sir Malcolm Campbell—J. Wentworth Day—*McKay*, 288 p., illus. Published several years ago in England, this interesting book has just appeared in the United States. It tells the romantic story of Sir Malcolm, culminating in his setting a speed record of 246 miles per hour in 1931, a speed which seems slow compared to the present one, by John R. Cobb, of 369.7 mph.

Science News Letter, August 30, 1941

BOTANY

FUNDAMENTALS OF PLANT SCIENCE—M. Ellen O'Hanlon—*Crofts*, 488 p., illus., $4.25. Botanists know Sister Mary Ellen as a rigorous researcher and a thorough teacher. It is only to be expected therefore that her book will be an accurate and complete presentation of its subject. There is a great deal more in it than an average first-year student can be expected to absorb in a single course; this has been done deliberately, the author explains, so that teachers may make their own selections, and arrange their courses to suit themselves. All of the line illustrations are new and original.

Science News Letter, August 30, 1941

MEDICINE

NATIVE AFRICAN MEDICINE—George Way Harley—*Harvard Univ. Press*, 294 p., $3.50. Doctors as well as anthropologists will find much of interest in this book written by a physician with over 20 years' experience as a medical missionary in West Africa.

Science News Letter, August 30, 1941

BIBLIOGRAPHY

AUDIO-VISUAL MATERIALS FOR JUNIOR AND SENIOR HIGH SCHOOL READING—Katherine E. Wheeling and Jane Anderson Hilson—*Wilson*, 98 p., $1.25. Under the names of about eighty prominent literary persons are listed sources of pictures, film strips, records, bibliographic material and books, and other supplementary help.

Science News Letter, August 30, 1941

TECHNOLOGY

TEXTILE FIBERS AND THEIR USE (3d ed., rev.)—Katharine Paddock Hess—*Lippincott*, 530 p., illus., $3. Since the second edition of this authoritative work, intended as a college text, such important advances in the field as the introduction of nylon and vinyon have been made. This revised edition includes these new developments.

Science News Letter, August 30, 1941